

Subcutaneous Injection of Mercury: "Warding Off Evil"

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Deliberate injection of mercury, especially subcutaneous injection, is rare but is seen in psychiatric patients, individuals who attempt suicide, those who are accidentally injected, and boxers who wish to build muscle bulk. Metallic mercury plays a major role in ethnic folk medicine. Neurologic and renal complications can result from high systemic levels of mercury, and subcutaneous injection usually results in sterile abscesses. Urgent surgical evacuation and close monitoring for neurologic and renal functions as well as chelation (if toxicity is indicated) are key aspects of treatment. Education of the adverse effects and dangers of mercury is important, especially in pregnant women and children. As increased immigration changes demographic patterns, proper disposal of mercury and preventing its sale and use should become urgent societal priorities. Psychiatric consultation should be obtained whenever appropriate. **Key words:** case report, local abscesses, mercury injection, subcutaneous. *Environ Health Perspect* 112:1326–1328 (2004). doi:10.1289/ehp.6891 available via <http://dx.doi.org/> [Online 22 July 2004]

Case Presentation

Injection of elemental mercury is uncommon, and only 72 cases have been reported in the literature over the past 75 years. Of these 72 cases 46 were deliberate; most involved direct intravenous administration, usually with suicidal intent (Kayias 2003), or they were a complication of drug abuse. Bradberry et al. (1996) reported an attempted homicide by this means. Self-injection has also been reported in psychiatric patients (Soo et al. 2003), and accidental injections have been reported (Ellabban et al. 2003). Subcutaneous injection of mercury by accident (including injuries from broken thermometers), self-injection, and suicide attempts has been reported (Chodorowski et al. 1997; Ellabban et al. 2003; Smith et al. 1997; Soo et al. 2003).

A search in MEDLINE and PubMed (National Library of Medicine, Bethesda, MD) did not reveal any study or report on injection of mercury in the subcutaneous space of the hands for the sole purpose of preventing infections and "evil" during foreign travel. This practice is apparently common in several Central and South American countries. In this case report, I present such an injection received by a couple in Honduras before they traveled to the United States.

G.B., a 41-year-old Hispanic woman, and her partner, V.V., a 35-year-old Hispanic male, came to the clinic together. Both had wet towels wrapped around both their forearms and hands. They reported having pain for 5 days as well as swelling in the hands and low-grade subjective fever. The pain was localized to the dorsum of the hand and forearm, with no radiation, and was moderate in intensity and continuous, with no specific aggravating or relieving factors. The swelling and redness was localized to the same areas on the dorsum of the hand. They reported no history of bites or stings, and they had no swollen

glands or joint pain. A review of systems was otherwise negative.

Both patients gave a history of having received multiple injections of mercury at a roadside nonmedical facility in Honduras about 1 week before their clinic visit. They did not know about the sterility of the procedure or if needles/syringes used were disposable. On further questioning, they indicated that the injection of mercury is a common practice among people who wish to travel abroad. The reason for their injections was to ward off "evil" and also to protect against exposure to any unknown diseases while traveling in a foreign country. The patients estimated that the injections for both hands in both patients was < US\$1.00.

Both G.B. and V.V. denied any significant allergies or past medical history. They were both nonsmokers and denied alcohol or drug abuse.

A physical exam revealed G.B. to be an obese Hispanic woman in obvious distress due to pain in both hands and forearms. The general exam was unremarkable, and a local exam revealed a diffuse soft tissue swelling on the dorsum of both hands, with fluctuation, redness, and pointing (most prominent part of swelling in an abscess that marks the area of imminent rupture) in the first web space of both hands. Redness and swelling was also noted all along both forearms, with significant tenderness. No lymphadenopathy was noted. Lungs and heart were normal, and there was no renal angle tenderness and no hepatosplenomegaly. The neurologic exam was normal.

V.V. was a tall, medium-built Hispanic male in distress from pain. The general exam was unremarkable, and the local exam revealed findings similar to those for his partner, with fluctuation, redness, and tenderness in the dorsum of the hand and first web space

and in the forearms. Otherwise, the exam was unremarkable.

Laboratory values for G.B. were as follows: glucose, 101 mg/dL; blood urea nitrogen (BUN), 14 mg/dL; creatinine, 0.8 mg/dL; sodium, 138 mmol/L; potassium, 4.1 mmol/L; chloride, 105 mmol/L; carbon dioxide, 22 mmol/L; calcium, 9.5 mmol/L; liver function tests, normal; white blood cell (WBC) count, 8,700/μL; hemoglobin, 12.6 g/dL; hematocrit, 37.6%; urine mercury, 11.3 μg/L; and serum mercury, < 5.0 μg/L.

Laboratory values for V.V. were as follows: glucose, 108 mg/dL; BUN, 26 mg/dL, creatinine, 1.1 mg/dL; sodium, 138 mmol/L; potassium, 4.2 mmol/L; chloride, 97 mmol/L; carbon dioxide, 26 mmol/L; calcium, 10.2 mg/dL; liver function tests, normal except for alanine aminotransferase, 64 U/L (normal, 4–60 U/L); WBC count, 8,700/μL; hemoglobin, 16.0 g/dL; hematocrit, 48.3%; and blood mercury, 100 μg/L (normal < 10 μg/L). Urine mercury analysis was not performed because V.V.'s urine samples were lost by the laboratory.

A diagnosis of abscess was made, and both patients underwent incision drainage of both hands. Thick pus was evacuated along with beads of metallic mercury (Figures 1–3). Complete evacuation of all visible mercury, about 0.5 mL, was performed and wounds were thoroughly washed with copious amounts of saline. The fluid removed was sterile pus (result of milder inflammation caused by irritants, foreign bodies, etc., but not due to infection). The soaked gauze and dirty sheets were disposed in regular waste.

Postoperatively, the wounds granulated and healed well by secondary intention (left open to heal by epithelization). Since that time, the patients have been lost to follow-up.

Discussion

Mercury is sold as "azogue" in religious stores, or botanicas, for use in Esperitismo (spiritual belief in Puerto Rico), Santeria (Cuban practices), and voodoo. The mercury is often carried personally in a pouch or spread around the house or bed, mixed in the bath, or burned in devotional candles. Mexican-Americans take it orally to relieve *empacho*

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